# AAS Air Traffic Control

# Educational Effectiveness

# Assessment Plan

**Version 4.0**

**Adopted by**

**The Air Traffic faculty: 03/05/18**

Reviewed with curriculum changes by the Academic Assessment Committee: 4/17/20

Reviewed by the Faculty Senate as an information item: 5/1/20

Reviewed with curriculum changes by the Academic Assessment Committee: 4/5/19

Reviewed by the Faculty Senate as an information item: 5/3/19

Reviewed by the Academic Assessment Committee: 4/20/18

Reviewed by the Faculty Senate as an information item: 5/4/18

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## Mission Statement

The goal of the AAS Air Traffic Control degree is to educate students in preparation for hire into the air traffic control profession and the Federal Aviation Administration, concentrating particularly on the areas of separation, industry knowledge, aircraft performance, and communication.

## Program Introduction

As one of 23 approved air traffic control college training initiative (CTI) initiative programs, the UAA Air Traffic Control program prepares students for careers in all aspects of air traffic control, including terminal and en route settings. Qualified graduates of this program are eligible for hire by the Federal Aviation Administration (FAA) and placement into the Oklahoma City FAA academy. The AAS degree provides students with entry-level employment skills.

## Assessment Process Introduction

This document defines the expected student learning outcomes for the AAS Air Traffic Control and outlines a plan for assessing the achievement of the stated outcomes.

The development of the outcomes consisted of faculty review of the status and outcomes of our program and determining how these served industry needs. Additionally, faculty met with industry representatives who have served as adjuncts at various times, and incorporated their technical input.

The faculty met and accepted the outcomes and assessment processes on March 5, 2018.

## Program Outcomes

At the completion of this program, students are able to perform the following:

1. Demonstrate knowledge of the theory of aircraft operating limitations and performance, including methods of air and ground navigation within the National Airspace system.
2. Demonstrate knowledge of weather and atmospheric processes, and how each affect the air traffic control system.
3. Demonstrate knowledge of Federal Regulations and the U.S. air traffic control system interactions, including FAA publications.
4. Demonstrate knowledge of fundamentals of aircraft separation in radar, nonradar, and terminal environments, as well as operating techniques of ATC facilities in visual and instrument conditions.
5. Demonstrate awareness of ATC industry trends, future developments, global implications, and current management practices and techniques.
6. Demonstrate knowledge of flight dispatcher operations, including weight and balance, flight planning, and fuel requirements.

## RELATED INSTRUCTION

Students in the Air Traffic Control AAS degree program build knowledge and skills needed to carry out specific tasks while they develop abilities in the essential elements of communication, computation, and human relations. Students obtain the element of communication through the requirement to complete WRTG A111 Writing Across Contexts and WRTG A212 Writing and the Professions, obtain the element of quantitate analysis through the requirement to complete MATH A105, or A151, or A152, or A221, or A251, and obtain the element of human relations through the requirement to complete an Oral Communication Skills course. Program specific course will address various aspects of these foundational competencies, depending on the individual topic and course outcomes.

## Table 1: Association of Assessment Measures to Program Outcomes

| **Outcomes** | AverageAT144 quiz scores | Average of test scores from ATC325 | Average of FAR tests | Average of separation tests | Average of essay score | Average of national flight dispatch exams |
| --- | --- | --- | --- | --- | --- | --- |
| 1. Demonstrate knowledge of the theory of aircraft operating limitations and performance, including methods of air and ground navigation within the National Airspace system.
 | 1 | 0 | 0 | 0 | 0 | 1 |
| 1. Demonstrate knowledge of weather and atmospheric processes, and how each affect the air traffic control system.
 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1. Demonstrate knowledge of Federal Regulations and the U.S. air traffic control system interactions, including FAA publications.
 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1. Demonstrate knowledge of fundamentals of aircraft separation in radar, nonradar, and terminal environments, as well as operating techniques of ATC facilities in visual and instrument conditions.
 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1. Demonstrate awareness of ATC industry trends, future developments, global implications, and current management practices and techniques.
 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1. Demonstrate knowledge of flight dispatcher operations, including weight and balance, flight planning, and fuel requirements
 | 1 | 0 | 0 | 0 | 0 | 1 |

## Assessment Measures

A description of the measures used in the assessment of the program outcomes and their implementation are summarized in Table 2 below. The measures and their relationships to the program outcomes are listed in Table 1, above.

There is a separate appendix for each measure that shows the measure itself and describes its use and the factors that affect the results.

## Table 2: Program Outcomes Assessment Measures and Administration

| **Measure** | **Description** | **Frequency/ Start Date** | **Collection Method** | **Administered by** |
| --- | --- | --- | --- | --- |
| Average of ATC144 quiz | An average of the weekly quiz administered in AT144 will be compiled in Spring and Fall semester. The class average is used | Semester end | Gradebook, ATC144 | ATC144 faculty |
| Average of tests, ATC325 | Twice during the semester, the faculty member for ATC325 administers a comprehensive knowledge test. The average of these two tests will be computed, and used for this score | Semester end | Compiled by ATC325 faculty | ATC325 faculty |
| Average of FAR tests | The faculty member for ATC143 administers two separate tests regarding FAR’s and airspace information. The class average is used | Semester end | Gradebook, ATC143 | ATC143 faculty |
| Average of separation tests | Faculty members in ATC241, 242, and 243 administer various tests throughout the semester to measure knowledge of different type of separation. A compilation of these scores will be kept. The class average is used. | Semester end | Gradebooks, ATC241, 242, and 243 | ATC241, 242, 243 faculty |
| Average of essay scores | three essays regarding current industry trends are completed by students in atc440. the class average is used | Semester end | Gradebooks, rubrics, ATC440 | ATC440 faculty |
| Average of national flight dispatch exams | National exams are given at the end of ATP251 and ATP451. The class average is used | Semester end | Compiled by ATP251 and ATP351 faculty | ATP251 and ATP351 faculty |

## Assessment Implementation & Analysis for Program Improvement

General Implementation Strategy

To implement this plan, the air traffic faculty intends to collect the data listed above through means of a Blackboard site that will allow all faculty involved instructor access. By doing so, the assessment coordinator will simply need to remind the various faculty involved when to input scores. We believe this will allow faculty to complete the process at a time convenient to their schedule. Additionally, the assessment coordinator will use the site to post documents and pertinent announcements relating to assessments.

A projected timeline for this process is as follows:

 Fall 2017 Revise plan, review and edit existing plan

 Spring 2018 Compile data throughout semester, input into Blackboard site

 May 2018 Analyze data, complete report

 Summer 2018 Revise method, created revised assessment plan

 Fall 2018 Submit revised plan, collect data for 2012 report

Method of Data Analysis and Formulation of Recommendations for Program Improvement

The program faculty will meet at least once a year to review the data collected using the assessment measures. This meeting should result in recommendations for program changes that are designed to enhance performance relative to the program’s outcomes, or updates to the outcomes themselves. The results of the data collection, an interpretation of the results, and the recommended programmatic changes will be forwarded to the Office of Academic Affairs (in the required format) by June 15th each year. A plan for implementing the recommended changes, including of advertising the changes to all the program’s stakeholders, will also be completed at this meeting. This meeting will be tentatively held each fall before the start of classes, so that faculty may have the results of the June report to analyze or discuss.

The proposed programmatic changes may be any action or change in policy that the faculty deems as being necessary to improve performance relative to program outcomes. Recommended changes should also consider workload (faculty, staff, and students), budgetary, facilities, and other relevant constraints. Some examples of changes may include the following:

* changes in course content, scheduling, sequencing, prerequisites, delivery methods, etc.
* changes in faculty/staff assignments
* changes in advising methods and requirements
* addition and/or replacement of equipment

Modification of the Assessment Plan

The faculty, after reviewing the collected data and the processes used to collect it, may decide to alter the assessment plan. Changes may be made to any component of the plan, including the outcomes, assessment measures, or any other aspect of the plan. All changes must then be approved by a majority of the faculty of the program. The modified assessment plan will be forwarded to the dean/director’s office and the Office of Academic Affairs.

## Appendix A: Average of ATC144 quiz scores

This page is repeated to provide a detailed description for each measure used in the assessment process

Measure Description:

Students in ATC144, one of our preliminary required courses and a prerequisite for any of our 200-level courses, are given a weekly quiz. The quiz covers the topics covered during the last week only. A record of these quizzes are kept in the faculty member grading device. That faculty member will provide an average grade for each section of ATC144 for the spring and fall semesters. We believe this is more indicative of progress than a midterm or final grade for this particular learning component.

Factors that affect the collected data:

Factors that could affect the collection of this data include the following:

1. Faculty member needs to provide data each semester, even though report only due in summer.
2. Students who miss quizzes may not have an opportunity to take each quiz, thereby resulting in a lower average score.

How to interpret the data:

Students score between 0-100 total points. We will get an average of all the scores for the class as a whole. Seventy percent is required to pass this class.

This data will tell us whether our students are being adequately prepared to understand the basic components of aircraft performance and navigation.

## Appendix B: Average of ATC325 tests

This page is repeated to provide a detailed description for each measure used in the assessment process

Measure Description:

Three times during the semesters, students in ATC325 take a comprehensive test designed to test knowledge of atmospheric processes and conditions. This test is based on FAA exams, and administered by UAA faculty.

Factors that affect the collected data:

Factors that could affect the collection of this data include the following:

1. We will be relying on faculty, usually adjunct, outside our department to contribute the data.
2. If the FAA is late or unreliable in updating the test, we will not have a comprehensive exam to base the test upon. That has not been a factor in the past, and we believe it will be in the future.

How to interpret the data:

The faculty member for ATC325 will inform the assessment coordinator of student test scores. The assessment coordinator will then input the data directly to the Blackboard page. We will use that data to look at a class average, and how each class performs as a group. Additionally, we will average the various classes throughout the year.

Through using this data, we should be able to compare how our students are performing based on national standards. Additionally, this data will allow us to judge whether our students are performing at the minimum level required for work in the industry. Students are scored on a scale of 0-100; a score of 70 is considered passing.

## Appendix C: Average of FAR tests

This page is repeated to provide a detailed description for each measure used in the assessment process

**Measure Description**

Students in ATC143, one of our preliminary required courses and a prerequisite for any of our 200-level courses, take two extensive tests during the semesters, one focusing on FAR’s in general, and the other on the FAR’s regarding airspace specifically. A record of these test scores are kept in the faculty member grading device. That faculty member will provide an average grade for each section of ATC143 for the spring and fall semesters. We believe this is more indicative of progress than a midterm or final grade for this particular learning component.

Factors that affect the collected data:

Factors that could affect the collection of this data include the following:

1. Faculty member needs to provide data each semester, even though report only due in summer.
2. Students who miss these tests will not be given the opportunity to take an identical test, but will be allowed to take a similar one. We believe this should result in approximately the save overall score, but slight discrepancies may occur.

How to interpret the data:

Students score between 0-100 total points. We will get an average of scores for the class as a whole. Seventy percent is required to pass this class.

This data will tell us whether our students are being adequately prepared to understand the FAR’s and their function in the ATC system.

The following graphs show a sample of the information that will be averaged to compute the final class average:

**FAR Test STATISTICS**



## Appendix D: Average of separation tests

This page is repeated to provide a detailed description for each measure used in the assessment process

**Measure Description**

Students in ATC241, ATC242, and ATC243 take a variety of exams designed to test their knowledge of separation standards. To best assess whether our students are learning the required knowledge, the average of class grades for four different tests will be taken: ATC241 final, ATC242 final, ATC243 nonradar test, and ATC243 radar test. These will be reported as class finals only; no individual scores will be used as students are not all taking the same courses at the same time. The faculty member for each course will provide a class average for each of these tests; an average score for all four tests will then be determined.

Factors that affect the collected data:

Factors that could affect the collection of this data include the following:

1. Up to four different faculty members could be providing data, including possible some adjuncts. This could result in the data being late or not provided at all.
2. Students who miss these tests will not be given the opportunity to take an identical test, but will be allowed to take a similar one. We believe this should result in approximately the save overall score, but slight discrepancies may occur.

How to interpret the data:

Copies of the faculty course statistics for previous classes are included. We will get a class average of these scores for each of the four tests listed above, and then compute a program average.

This data will tell us whether our students are being adequately prepared to understand the various separation standards used by the FAA.

The following graph illustrates the data that will be used to compute the final class average for each test.

**Non radar test**

Top of Form

| Points Possible:: | spacer49 |
| --- | --- |
| Item Weight: | spacer0% |
| Category Weight: | spacer0.0% |
| Total Points: | spacer777 |
| Average Score: | spacer43.17 |
| Standard Deviation: | spacer3.52 |
| Variance: | spacer12.36 |
| High Score: | spacer48 |

Bottom of Form

## Appendix E: Average of ATC440 Essays

This page is repeated to provide a detailed description for each measure used in the assessment process

**Measure Description**

ATC440 is a required course for the AAS, Air Traffic Control emphasis. Students are required to write a series of essays on a range of topics from current best management practices to global implications of air traffic management. These essays are graded with rubrics. An average score for each essay, and each class will be provided.

**Factors that affect the collected data:**

Factors that could affect the collection of this data include the following:

1. As this class is offered via distance education, scores may reflect technical or pedagogical issues more than classes offered in the more traditional methods.
2. The cohort of students requiring this class is quite small, and therefore collected data will be subject to the known defects of small data samples.

**How to interpret the data**

Students will complete 4 essays during this course; the average for each essay will be kept. All of the averages for the semester will then be calculated and averaged to provide the assessment score. A sample rubric has been included below.

## Appendix F: Average of National Flight Dispatcher Exams

This page is repeated to provide a detailed description for each measure used in the assessment

**Measure Description**

Students in ATP251 are given a written national exam, and students at ATP351 are given an oral national exam at the end of each respective class. The class average for each exam is recorded; the scores are recorded and averaged to provide the assessment score.

**Factors that affect the collected data**

1. Occasionally, an instructor will give the written exam during the following semester; this will obviously delay but not affect the results.
2. We are relying on reporting from the FAA; occasionally issues will arise where the reporting is late, or unreliable.

**How to interpret the data:**

The faculty member for ATP251 and ATP351 will inform the assessment coordinator of student test scores. The assessment coordinator will then input the data directly to the Blackboard page. We will use that data to look at a class average, and how each class performs as a group.

Through using this data, we should be able to compare how our students are performing based on national standards. Additionally, this data will allow us to judge whether our students are performing at the minimum level required for work in the industry. Students are scored on a scale of 0-100; a score of 70 is considered passing.